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Loudermilk & Associates			WANG, QUAN ZHEN	
P.O. Box 3607			ART UNIT	
Los Altos, CA 94024-0607			PAPER NUMBER	
			2633	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/001,524

Applicant(s)

HEINZ ET AL.

Examiner

Quan-Zhen Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is a response to amendment filed on February 9, 2006. It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

- a. Application number (checked for accuracy, including series code and serial number).
- b. Group art unit number (copied from most recent Office communication).
- c. Filing date.
- d. Name of the examiner who prepared the most recent Office action.
- e. Title of invention.
- f. Confirmation number (See MPEP §503).

Drawings

2. Figures 1A and 1B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "router-less network operation center"; "data is transmitted through the fiber optic ring using a plurality of wavelengths of light"; "fiber optic ring comprises a wavelength division multiplexing (WDM) or dense wavelength division multiplexing (DWDM) fiber optic ring"; "data communications for the second user are segregated from other users via frame tags"; "at least a first channel for data transmission via the fiber optic ring is dedicated for communications with the telephone company central office via a telecommunications protocol, wherein at least a second channel for data transmission via the fiber optic ring is dedicated for communications between user facilities or other facilities coupled to the fiber optic ring via an Ethernet protocol"; "fiber optic ring comprises one or more pairs of fiber optics, wherein a first fiber of at least one pair of fibers transmits data in both directions around the fiber optic ring, wherein a second fiber of the at least one pair of fibers transmits in both directions around the fiber optic ring opposite the first direction"; "a redundant path for data transmissions via the fiber optic ring"; and "a self-healing fiber optic ring"; and other claimed features must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 1-30 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

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possession of the claimed invention. "Router-less NOC" is not supported by the specification as originally filed.

6. Claims 1-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites the newly added limitation "a router-less network operation center (NOC)". However, the instant specification only states "the present invention provides router-less and server-less network access to outside networks" (page 3, lines 9-11). The specification is completely silent as to how to provide "router-less and server-less network access to outside networks". On the contrary, the specification discloses in numerous places that a "network operation center (NOC)" "routes" data in the network. For example, the specification disclose: "FSO 108 preferably receives the data and transmits them across EOAN fiber ring 100 to EOAN NOC 76, which routes the optical signals to radio tower 110" on page 14; "FSO 108 transmits the optical signals via EOAN fiber ring 100 to EOAN NOC 76, which routes the data to ISP 14 and onto Internet 16", "FSO 108 receives the optical signals and transmits them across EOAN fiber ring 100 to EOAN NOC 76, which converts the Ethernet protocols into telecommunication protocols preferably with an IP-enabled PBX and routes the voice data preferably via EOAN fiber ring 100", and "FSO 108 transmits the data across

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EOAN fiber ring 100 to EOAN NOC 76, which routes the voice data using telecommunication protocols to central office 12" on page 15; "user 120 may transmit data via Ethernet protocol via EOAN fiber ring-1 114 to EOAN NOC 76, which routes the data via EOAN fiber ring-2 116 to user 122" on page 17; "User 132, which is connected to EOAN NOC 76 via an optical network connection (e.g., fiber optic cable, fiber optic lateral and optical multiplexer or switch, etc.), transmits data via an Ethernet protocol across EOAN fiber ring-1 114 to EOAN NOC 76, which routes the data to user 134" on page 18; Clearly, the instant specification does not disclose a "router-less network operation center (NOC)", but discloses that the NOC do route data in the network. As to claim 31, for the same reasons, the instant specification does not disclose a corresponding "router-less" method for managing data transmission.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 4, 7-24, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. (U.S. Patent Application Publication US 2002/0191250 A1) in view of Anderson (U.S. Patent Application Publication US 2002/0013858).

Regarding claim 1, in view of the above 112 problem, Graves discloses An Ethernet Optical Area Network (figs. 1a-1d, 3, 4, 5, and 12) comprising: a fiber optic ring

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(fig. 3, the ring formed by 15a, 15b and 17a); a plurality of user facilities (figs. 4, users 4a, 4b, 4c, 8, and 9) coupled to the fiber optic ring, wherein each of the user facilities is coupled to the fiber optic ring via an optical switch (fig. 4, edge photonic switch) operating in accordance with an Ethernet protocol and an Ethernet switch (fig. 4, access MUX; fig. 12, Ethernet switch 42), wherein one or more of the user facilities is coupled to the Ethernet switch via a microwave (fig. 4, wireless connection between cell base station 10 and users 8 and 9); a network operation center (NOC) (fig. 4, Core node 16a) coupling data to and from the fiber optic ring, wherein the NOC (core node) is coupled to the fiber optic ring via an optical switch and an Ethernet switch (fig. 4, core photonic switch 19), wherein the NOC (core node) includes a network management application for managing the EOAN by managing the optical switches and the Ethernet switches coupling the user facilities and the NOC (core node) to the fiber optic ring (fig. 4, contact manager 120d); wherein end-to-end data communications are provided between various user facilities coupled to the fiber optic ring including one or more user facilities coupled via a microwave an Ethernet protocol (paragraphs 0106-0108). Grave differs from the claimed invention in that Grave does not specifically a router-less network operation center. However, the concept of a router-less MAN is well known in the art. For example, Anderson discloses a high-speed router-less network MAN. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the concept of a router-less MAN, as it is disclosed by Anderson, in the system of Graves in order to build a system that is operated at a large scale, but using the same principles as a small local area network.

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Regarding claim 2, the NOC (core node) of Graves sends network management commands to the optical switches and Ethernet switches coupling the user facilities and the NOC (core node) to the fiber optic ring (page 10, paragraph 0106).

Regarding claim 4, Graves further teaches to allocate bandwidth between types of data communications over the fiber optic ring (paragraphs 0099 and 0108).

Regarding claims 7-8, Graves further teaches that the data is transmitted through the fiber optic ring using a plurality of wavelengths of light, wherein each wavelength provides a channel for data transmission via the fiber optic ring, and the fiber optic ring comprises a wavelength division multiplexing (WDM) or dense wavelength division multiplexing (DWDM) fiber optic ring (paragraphs 0091).

Regarding claims 9-12, Graves further teaches that the data communications for a plurality of users is provided at least in part by assigning one or more of the channels for data transmission to one or more particular users; at least a first user is assigned a predetermined channel of the plurality of channels, wherein data communications for the first user are transmitted over the fiber optic ring using the predetermined channel; and data communications for only the first user are transmitted over the fiber optic ring using the predetermined channel (figs. 4 and 12, and paragraph 0203).

Regarding claim 13, it is inherent that data communications for the second user are segregated from other users via frame tags.

Regarding claim 14, Graves further teaches that data communications from a first user facility to a second user facility are routed to the NOC (core node) via the fiber

optic ring and subsequently routed to the second user facility from the NOC (core node) via the fiber optic ring (fig. 3).

Regarding claims 15-16, Graves differs from the claimed invention in that Graves does not specifically teach that a telephone company central office connects a particular voice data communication to a remote user facility and transmit voice data communication to the user facility via a communication facility separate from the fiber optic ring. However, Graves further teaches to transmit voice data (paragraphs 0025 and 0028). In addition, Graves further teaches that the end user in the network can be a medium business or a residential neighborhood end-user (paragraph 0093).

Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to connect a telephone company central office to the network of Graves, and transmit the particular voice data communication to the telephone company central office via a communication facility separate from the fiber optic ring in order to provide telephone services in the neighborhood.

Regarding claims 17 and 19, Graves further teaches to transmit the particular voice data communication to the telephone company central office via the fiber optic ring using a plurality of wavelengths of light; and a telecommunications protocol (paragraphs 0025 and 0028).

Regarding claims 20-23, Graves further teaches that a plurality of fiber optic rings that are interconnected (figs. 1a-1c) and the user facilities coupled in each rings; and data communications between the optical rings in accordance with an Ethernet protocol (paragraphs 0024-0033)

Regarding claim 24, Graves further teaches that a long-haul fiber connection (fig. 3, fiber 22) is connected to the network.

Regarding claim 30, Graves differs from the claimed invention in that Graves does not specifically teach that the system comprises first and second NOCs (core node), wherein the second NOC (core node) is a redundant NOC (core node) and manages the EOAN by managing the optical switches and the Ethernet switches if the first NOC (core node) is unavailable. However, Graves further teaches to protect the traffic of the system (paragraph 0102). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a second NOC (core node) and configure the second NOC (core node) to be redundant with the first NOC (core node) in order to further protect the data traffic in the system.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. (U.S. Patent Application Publication US 2002/0191250 A1) in view of Anderson (U.S. Patent Application Publication US 2002/0013858) and further in view of Amoruso (U.S. Patent US 6,359,729 B1)

Regarding claim 3, Graves and Anderson differ from the claimed invention in that Graves and Anderson do not specifically teach that the network management commands comprise SNMP commands. However, SNMP commands are well known in the art. For example, Amoruso discloses to use SNMP for network management communications (column 2, lines 16-26). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to configure the

network management commands in the modified system of Graves and Anderson to comprise SNMP commands, as it is taught by Amoruso, in order to utilize standardized communication management protocols.

10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. (U.S. Patent Application Publication US 2002/0191250 A1) in view of Anderson (U.S. Patent Application Publication US 2002/0013858) and further in view of Chao et al. (U.S. Patent US 5,050,164).

Regarding claims 5 and 6, Graves and Anderson differ from the claimed invention in that Graves and Anderson do not specifically teach that the voice communications are given a higher priority for data transmission over the fiber optic ring as compared to computer data communications; and a predetermined level of Quality of Service (QoS) is provided for voice communications over the fiber optic ring. However, it is well known in the art that voice communications should be given a higher priority. For example, Chao discloses that voice communications are more delay sensitive and should be assigned higher priority (column 2, lines 26-32). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to give higher priority for voice communications and provide a predetermined level of Quality of Service (QoS) for voice communications over the fiber optic ring in the modified system of Graves and Anderson, as it is taught by Chao, in order to ensure data transmission for the more delay sensitive voice communications.

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11. Claims 25-26, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. (U.S. Patent Application Publication US 2002/0191250 A1) in view of Anderson (U.S. Patent Application Publication US 2002/0013858) and further in view of Olmstead et al. (U.S. Patent US 5,247,381).

Regarding claims 25 and 26, Graves further teaches that a first user transmits data to the fiber optic ring (fig. 3, user 4a), a second user transmits data to the fiber optic ring at least in part using a microwave data transmission (fig. 3, user 9), a third user transmits data to the fiber optic ring at least in part using a fiber optic data transmission but not a free space optic data transmission or a microwave data transmission (fig. 3, user 4c). Graves and Anderson differ from the claimed invention in that Graves and Anderson do not specifically teach that the first user transmits data to the fiber optic ring at least in part using a free space optic data transmission. However, it is well known in the art to transmit data using a free space optic data transmission. For example, Olmstead discloses to transmit data using a free space optic data transmission (fig. 1-3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a free space optic data transmission, as it is taught by Olmstead, into the modified system of Graves and Anderson in order to provide services for users who do not have access to fiber optic connections.

Regarding claim 26, Graves further teaches the first user, second user and third user are geographically remote from each other, wherein data communications from

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and among the first user, second user and third user are in accordance with an Ethernet protocol (figs. 3 and 12).

Regarding claim 31, in view of the above 112 problem, Graves discloses a method for managing data transmissions via an Ethernet Optical Area Network (EOAN) via a fiber optic ring and a network operation center (NOC) coupling data to and from the fiber optic ring (figs. 1a-1d, 3, 4, 12, and 14), wherein the NOC is coupled to the fiber optic ring via an optical switch and an Ethernet switch (fig. 12, Ethernet switch 42), the method comprising the steps of: transmitting first user data to the fiber optic ring, wherein the first user data is transmitted via the fiber optic ring to the NOC in accordance with an Ethernet protocol (fig. 3, user 4a); transmitting second user data to the fiber optic ring at least in part using a microwave data transmissions, wherein the second user data is transmitted via the fiber optic ring to the NOC in accordance with an Ethernet protocol (fig. 3, user 9); transmitting third user data to the fiber optic ring at least in part using a fiber optic data transmission but not a free space optic data transmission or a microwave data transmission, wherein the second user data is transmitted via the fiber optic ring to the NOC in accordance with an Ethernet protocol (fig. 3, user 4c); routing the first user data, the second user data and the third user data via the NOC; wherein the NOC includes a network management application for managing the EOAN by managing optical switches, Ethernet switches, free space optic transmission systems, microwave transmission systems, and other transmission devices that control transmission of user data via the fiber optic ring (paragraphs 0024-0033, 0106-0108); wherein data communications are provided between various user

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facilities and other facilities coupled to the fiber optic ring using an Ethernet protocol (paragraph 0155). Grave differs from the claimed invention in that Grave does not specifically a router-less network operation center. However, the concept of a router-less MAN is well known in the art. For example, Anderson discloses a high-speed router-less network MAN. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the concept of a router-less MAN, as it is disclosed by Anderson, in the system of Graves in order to build a system that is operated at a large scale, but using the same principles as a small local area network. Graves and Anderson further differ from the claimed invention in that Graves and Anderson do not specifically teach that the first user transmits data to the fiber optic ring at least in part using a free space optic data transmission. However, it is well known in the art to transmit data using a free space optic data transmission. For example, Olmstead discloses to transmit data using a free space optic data transmission (fig. 1-3). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a free space optic data transmission, as it is taught by Olmstead, into the modified system of Graves and Anderson in order to provide services for users who do not have access to fiber optic connections.

12. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. (U.S. Patent Application Publication US 2002/0191250 A1) in view of

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Anderson (U.S. Patent Application Publication US 2002/0013858) and further in view of Cadeddu et al. (U.S. Patent US 5647,035).

Regarding claim 27, Graves and Anderson differ from the claimed invention in that Graves and Anderson do not specifically teach that the fiber optic ring comprises one or more pairs of fiber optics, wherein a first fiber of at least one pair of fibers transmits data in both directions around the fiber optic ring, wherein a second fiber of the at least one pair of fibers transmits in both directions around the fiber optic ring opposite the first direction. However, it is well known in the art to configure a fiber optic ring to comprise one or more pairs of fiber optics, and transmit data in both directions around the fiber optic ring. For example, Cadeddu discloses fiber optic ring comprising one or more pairs of fiber optics, and transmit data in both directions around the fiber optic ring (figs. 1 and 2). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate the fiber optical ring fiber comprising one or more pairs of fiber optics, as it is taught by Cadeddu, into the modified system of Graves and Anderson in order to increase the operation reliability of the data transmission system.

Regarding claims 28-29, Cadeddu further teaches that data transmissions may occur via the first direction or the second direction, wherein a redundant path for data transmissions via the fiber optic ring is provided (figs. 1 and 2), and the fiber optic ring comprises a self-healing fiber optic ring (column 1, lines 19-22).

Response to Arguments

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13. Applicant's arguments on Drawing Objection filed on February 9, 2006 have been fully considered but they are not persuasive.

The Applicant claims that "Applicant is submitting under separate cover corrected formal drawings that address the prior art labeling issue". However, the claimed "separate cover corrected formal drawings" are not found in the system. In addition, the drawings must show every feature of the invention specified in the claims in order to meet the requirements under 37 CFR 1.83(a), or the feature(s) should be canceled from the claim(s).

14. Applicant's other arguments filed on February 9, 2006 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
3/5/2006


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